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	First Named Inventor	Michihiko YANAGISAWA	
	Art Unit	1763	
	Examiner Name	R. N. Kackar	
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Firm Name	MORRISON & FOERSTER LLP		
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Date	January 7, 2005	Reg. No.	28,055



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the application of:

Michihiko YANAGISAWA *et al.*

Serial No.: 10/098,588

Filing Date: March 18, 2002

For: WAFER TABLE FOR LOCAL DRY
ETCHING APPARATUS

Examiner: Ram N. Kackar

Group Art Unit: 1763

APPELLANTS' REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Reply Brief responds to the Examiner's Answer mailed November 8, 2004.

INTRODUCTION

There are two controlling questions for the Board to decide in this appeal. The first is whether the term "half value width" of an etching rate distribution peak recited in the claims is indefinite when the half value width varies depending on process parameters and is compared to the dimensions of an etching apparatus and a wafer that is processed by the apparatus. The second is whether teachings in the prior art of dimensions of the apparatus and the wafer alone can render obvious claims obvious that specified dimensional relationships among the half value width, the apparatus and the wafer. Because appellants have already explained why the two questions should be answered in the negative in their Opening Brief filed October 7, 2004, in this

Reply Brief appellants respond only to the Examiner's arguments in the Response to Argument section at page 5 of the Examiner's Answer.

Appellants note that the Examiner has objected to the specification in the Examiner's Answer. However, this objection is not before the Board on this appeal and need be dealt with only after the Board decides this appeal.

I. THE HALF VALUE WIDTH LIMITATION IS NOT INDEFINITE BECAUSE IT PROVIDES CLEAR WARNING TO THE PUBLIC OF WHAT CONSTITUTES PATENT INFRINGEMENT.

Appellants explained in the Opening Brief filed October 7, 2004, that once an etching rate distribution peak is obtained by measuring the etch pit formed by the one-minute etching, persons skilled in the art would then measure the half value width of the obtained peak and compare the measured half value width to the wafer table size and the wafer size in order to determine whether the apparatus they are using is covered by the claims. In response, the Examiner contends that claims are indefinite because "[r]egarding to the warning to others, without a standard, it would be possible to find parameters which would result in a "half value width" which could make any other design in infringement, including the ones which did not use the approach taken by the applicant." Page 5, Examiner's Answer. The Examiner is correct in stating that it would be possible to find process parameters which would not result in infringement of the claims. And as the Examiner properly concedes, given an etching apparatus and a wafer to be etched by the apparatus, persons skilled in the art will likely find a set of process parameters that make the etching apparatus infringe the claims. That is all that is required of patent claims. Accordingly, an etching apparatus infringes appellants' claims when it etches the wafer under the process parameters determined by the claimed half value width limitation, and it does not infringe the claims when it etches the wafer under other process parameters. Thus, the half value width limitation provides clear warning of patent infringement.

Appellants note that the Examiner did not respond to appellants' argument in the Opening Brief that claims including relative terminology are not per se indefinite under

Orthokinetics, Inc. v. Safety Travel Chairs, Inc. and *Ex parte Brummer*. As a result, appellants suggest that the Examiner has conceded the validity of this argument.

II. THE TEACHING OF LIMITATIONS OF A DEPENDENT CLAIM DOES NOT MAKE UNPATENTABLE AN INDEPENDENT CLAIM FROM WHICH IT DEPENDS.

Appellants explained in the Opening Brief that a teaching in the prior art of additional limitations recited in a dependent claim could not possibly render the base independent claim unpatentable unless the prior art teachings disclose or suggest the limitations recited in the independent claim as well. It goes without saying that if an independent claim is patentable over the prior art, a claim depending therefrom must also be patentable per se. Specifically, the dimensions of the wafer and the wafer table recited in dependent claims 3 and 9 do not render obvious respective base independent claims 2 and 8 that include half value width limitations which are not disclosed by the prior art.

At page 5 of the Examiner's Answer, the Examiner responds as follows:

Since claim 3 depends from claim 2 these two claims must be consistent with each other. This means that, for the processes tried by the applicant resulting difference of radii fell in the claimed range. So that if the prior art discloses a difference of radii which falls within the claimed range, the claims would not be non-obvious. Similar reasoning applies to claims 8 and 9.

Appellants cannot follow this reasoning. The first two sentences of the paragraph seem to allege that claims 2 and 3 cover the same scope with different expressions. This is not the case at all in the claimed etching apparatus. For example, an etching device may have a wafer table that is larger than a wafer to be etched by the apparatus by 4 mm to 10 mm as stated in claim 3, and yet the size difference between the wafer and the wafer table can be larger than 40 percent of the half value width or smaller than 10 percent of the half value width depending on the plasma etching conditions, thus placing the etching apparatus outside the claim scope. In any event, Yanagisawa does not explicitly teach the claimed half value width limitation, and the Examiner fails to explain why Yanagisawa's teaching of the nozzle size cited by the Examiner implicitly discloses the claimed half value width.

In the Opening Brief, appellants also explained that the Examiner relied without explanation or support in the record on the assumption that the distance between the edge of the wafer and the edge of the wafer table is equal to the radius of the nozzle for the etching gas injection in order to find the dimensional limitations of claims 3 and 9. In the Examiner's Answer, the Examiner did not respond to appellants' remark that the radius of the nozzle is not equal to the radius of etch spot on the wafer which is formed as a result of injection of the etching gas from the nozzle. However, even assuming that the nozzle radius is substantially equal to the etch spot radius, the reasoning given by the Examiner in the Answer fails to support his conclusion that the variation in the radius of Yanagisawa's nozzle, i.e., 3.5 - 15 mm, is equal to the distance between the edge of Yanagisawa's wafer and the edge of Yanagisawa's wafer table. The Examiner contends that persons of ordinary skill in the art would have used Yanagisawa's apparatus so as to arrive at this dimensional limitation because "the area of etch spot should always lie on the table for equipment safety." Appellants point out that in order to protect the etching apparatus persons of ordinary skill would only have had to make the wafer table larger than the wafer by the radius of the nozzle, i.e., larger than 3.5 mm when Yanagisawa uses the small nozzle and larger than 15 mm when Yanagisawa uses the large nozzle. In other words, Yanagisawa does not teach or suggest an upper limit of the size difference. Nothing in Yanagisawa teaches or suggests that the difference between the two radii should be larger than 3.5 mm and smaller than 15 mm as the Examiner alleges, much less between 4 mm and 10 mm as claimed.

CONCLUSION

For the foregoing reasons and the reasons previously stated, appellants respectfully request that all of the rejections be reversed.

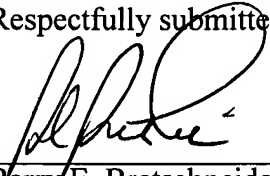
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for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 506212000600.

Respectfully submitted,

Dated: January 7, 2005

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